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April 16, 2003

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Ms. Marlene H. Dortch  
Secretary  
Federal Communications Commission  
445 12th Street, S.W.  
Washington, D.C. 20554

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

**Re: Ex Parte Presentation of MDS America, Incorporated  
ET Docket No. 98-206; RM-9147; RM-9245  
Restrictive EPFD Limits Unnecessary to Prevent Harmful Interference to  
DBS Reception as Demonstrated by Current Deployment of MVDDS  
Systems**

Dear Ms. Dortch:

MDS America, Incorporated ("MDS America") has urged the Commission in its Petition for Reconsideration<sup>1</sup> and in *ex parte* presentations in this proceeding\* to modify the technical rules for the Multichannel Video Distribution and Data Service ("MVDDS")<sup>3</sup> to return to the original approach of permitting MVDDS transmitters to operate at higher power limits in rural

<sup>1</sup> MDS America, Incorporated, *Petition for Reconsideration of the Memorandum Opinion and Order* and *Second Report and Order* in ET Docket No. 98-206; RM-9147; RM-9245.

<sup>2</sup> See, e.g., MDS America, Incorporated, *Ex Parte Filing*, ET Docket No. 98-206; RM-9147; RM-9245; "Use of Tall Towers with Higher Rural Power Limits Mitigates DBS Interference while Ensuring Viable MVDDS Rural Coverage" (Oct. 15, 2003).

<sup>3</sup> See Amendment of Parts 2 and 25 of the Commission's Rules to Permit Operation of NGSO FSS Systems Co-Frequency with GSO and Terrestrial Systems in the Ku-Band Frequency Range; Amendment of the Commission's Rules to Authorize Subsidiary Terrestrial Use of the 12.2-12.7 GHz Band by Direct Broadcast Satellite Licensees and Their Affiliates; and Applications of Broadwave USA, PDC Broadband Corporation, and Satellite Receivers, Ltd. to Provide a Fixed Service in the 12.2-12.7 GHz Band. *Memorandum Opinion And Order and Second Report and Order*, FCC 02-116 (released May 23, 2002) (hereafter, "*MVDDS Order*").

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areas.<sup>4</sup> In particular, in order to ensure deployment of new MVDDS service to rural areas, MDS America has recommended that the Commission adopt an EIRP limit of 39 dBm for areas outside the top 50 markets, and EPFD limits that also observe the rural/urban distinction and are at the levels shown on the map included in Attachment A.<sup>5</sup> MDS America has also recommended that the PFD limit be eliminated, or at least be reduced to  $-109 \text{ dBW/m}^2/4 \text{ kHz}$ .

As described below, because a DBS receiver will discriminate between transmissions based on their transmission vectors; because DBS satellites are more than 9 degrees apart; and because an MVDDS transmitter would have to be mounted on a tower whose height is more than 750 meters in order to have a transmission vector of more than 10 degrees above the horizon for any DBS receiver, a DBS receiver would reject the MVDDS signal in the same manner in which it rejects transmissions from third party DBS satellites. Just as competing DBS systems can co-exist without interference, so too can MVDDS and DBS systems co-exist without harmful interference. Reliance on EPFD limits to prevent harmful interference is unnecessary, and in fact may be counter-productive. Given that MVDDS/DBS co-existence has been proven in on-going and expanding commercial operations using MDS America's technology, there is no need to impose unduly restrictive power and EPFD limits derived exclusively from theoretical constructs and that could effectively foreclose rural deployment of MVDDS.<sup>6</sup>

Less Restrictive Power and EPFD Limits Promote Rural Deployment of MVDDS without  
Harmful Interference to DBS

Since the filing of MDS America's Petition for Reconsideration, Northpoint Technology, Ltd. ("Northpoint") has also strongly recommended that the Commission allow higher power levels for MVDDS operations,<sup>7</sup> although Northpoint has supported retention of the EPFD limits

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<sup>4</sup> See *First Report and Order and Further Notice of Proposed Rule Making*, FCC 00-418, ET Docket No. 98-206, 16 FCC Rcd 4096 (2000) at Appendix E, ¶ 7.

<sup>5</sup> As shown on the map attached as Attachment A, MDS America's recommended urban and rural EPFD limits (in  $\text{dBW/m}^2 - 4 \text{ kHz}$ ) for each of four regions are: Southeast -  $-166.7$ ;  $-155.7$ ; Central:  $-168.7$ ,  $-157.7$ ; NE/MW:  $-170.5$ ,  $-158.5$ ; West:  $-173.0$ ,  $-160.0$ .

<sup>6</sup> MDS America does not believe that the existing PFD or EPFD limits are necessary to prevent interference between its operations and DBS operations. However, to the extent the Commission wishes to impose limits to preclude interference from MVDDS operations using technologies not yet proven in commercial operations, MDS America believes that the limits it has recommended would achieve the Commission's objective without unduly constraining deployment of MVDDS service in rural areas.

<sup>7</sup> See, e.g., *Ex Parte Notification of Northpoint Technology, Ltd., dated Mar. 13, 2003*, advocating elimination of the 3-km PFD limit and the 14 dBm EIRP limit, as well as of the 10-km required separation of MVDDS transmitters from NGSO receivers; *Consolidated Response*

now specified in the Commission's Rules. Both Northpoint and MDS America have shown that the higher power levels for rural areas are critical for efficient implementation of MVDDS service to rural areas. As MDS America has also shown, allowing higher rural power levels will also improve service to urban areas, while reducing potential interference to Direct Broadcast Satellite ("DBS") operations.

Further, MDS America believes that raising the permitted EPFD limits for rural areas is also an essential concomitant of the two-tiered approach so critical for bringing MVDDS service to rural areas. The Commission has relied on EPFD limits as predictive of the likelihood of harmful interference, but such reliance is unnecessary and has the adverse effect of artificially restricting MVDDS deployment. As has been repeatedly demonstrated in real-world implementation of MDS America's technology, it is not EPFD limits that are needed to prevent interference to DBS operations but effective system design.<sup>8</sup> The Commission's real concern is with prevention of harmful interference, not with adherence to particular EPFD limits. By raising the EPFD limits as well as the power limits for rural areas outside the top 50 television markets, the Commission can maximize effective spectrum use and bring new MVDDS service to more Americans, particularly in underserved rural areas, without jeopardizing continued DBS reception. Indeed, higher rural power limits can in fact be used by system designers to reduce potential harmful interference to DBS reception in urban areas.

As the MITRE Report<sup>9</sup> as well as MDS America's submissions have shown, there are a number of techniques that can be used to avoid harmful interference with DBS while ensuring efficient provision of MVDDS service, many of which are made feasible by higher power limits that allow efficient use of tall towers erected in rural areas.<sup>10</sup> Tall towers combined with high power allow service to larger rural areas, and the limited population in an exclusion zone near the tower is easily served by repeaters and reflectors with controlled emission patterns. Urban areas may also be served by farther away tall towers in a similar manner, which can in addition avoid multipath interference problems.

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*Northpoint Technology, Ltd., And Broadwave USA, Inc., To Petitions For Reconsideration Of Second Report And Order* (Sept. 3, 2002).

<sup>8</sup> Cf. *MITRE Corporation*, "Analysis of Potential MVDDS Interference to DBS in the 12.2 – 12.7 GHz Band" (filed Apr. 18, 2001) ('*MITRE Report*'? at 5-11, 6-1 (discussing variety of system design and mitigation techniques available).

<sup>9</sup> *Id.* at xvii, 6-2

<sup>10</sup> The MITRE Report also notes the availability of such techniques as terrain shielding, elevation tilt, horn size, frequency offset, and azimuth angle. *MITRE Report* at 5-8.

As MITRE also recognized, the signal discrimination capability of DBS receivers is also an important means of avoiding interference.” The MITRE Report found that a constant digital signal, such as that from an MVDDS transmitter, can be much more readily rejected by a DBS receiver than can random interference.” Equally important, just as a DBS receiver rejects the signals from DBS satellites other than those whose signals it is intended to receive, because DBS satellites are 9 degrees apart, so too will the DBS receiver reject an MVDDS signal. Unless an MVDDS transmitter is mounted on a tower more than 750 meters tall, the MVDDS system could not have a transmission vector of more than 10 degrees above the horizon for any DBS receiver. Under these conditions, the EPFD level of transmissions from the MVDDS antenna is relatively unimportant. The inherent capability of a DBS receiver to discriminate between transmissions because of their different horizontal elevation angles will assist in mitigating harmful interference to DBS reception.

#### Interference-Free Deployment of MDS America’s Technology in the UAE

The commercial deployment in the United Arab Emirates (“UAE”) of the MVDDS technology used by MDS America provides real-world confirmation of the ability of DBS and MVDDS co-frequency operations to co-exist without harmful interference. Etisalat, which provides DBS services to the UAE, in 2002 awarded a contract for MVDDS service to MDS America’s technology licensor, MDS International. Only firms such as MDS International that had previously deployed MVDDS systems were eligible to participate in the tender.

As the successful bidder, MDS International accepted the risk of installing the first system at its own expense, with the condition that it be removed if the system implementation was unsuccessful. Rather than requiring removal of the system, Etisalat has ordered more systems. Since MDS International successfully installed the first system in August 2002, Etisalat has contracted for three more systems that are being installed in four of the Emirates (including Dubai, Sharjah, and Abu Dhabi), and requests for additional systems for deployment in the remaining Emirates are pending. Installation was completed within weeks of order placement for each system. Forty-thousand consumer set-top boxes have already been ordered by Etisalat, which has been so pleased with the service that it has suspended further deployment of its coaxial cable television service, and Etisalat eventually expects to order six-hundred-thousand set top boxes. The service is currently available in the city of Al Ain, as well as in rural areas located up to 67 kilometers from the city center. These rural areas previously had no access to multi-channel video service except from satellites.

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<sup>11</sup>

The Commission, too, has expressed strong interest in improvements in receiver performance as a tool for more efficient spectrum utilization. *See Notice of Inquiry*, FCC 03-54, ET Docket No. 03-65 (adopted Mar. 13, 2003).

<sup>12</sup>

*See MITRE Report* at 3-18, A-12, A-24.

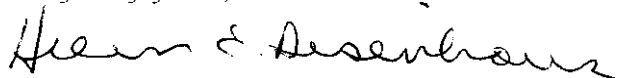
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According to Etisalat, since the first system was installed in August, there has been not one complaint of harmful interference to DBS reception or of any MVDDS system interruption, even during the well-publicized violent sand-storm last month that knocked out all Etisalat's microwave operations. The MVDDS system has 500 channels (of which 154 are already "lit") and occupies 700 MHz of spectrum. Most Emiratis have satellite dishes to receive video programming. There has been no interference between, for example, MVDDS transmissions and Arab-language satellite-distributed programming popular in the UAE and available from the Arabsat satellite located at 26° East. Arabsat programming is available in the 10.956 – 12.7 GHz frequency range, while the Etisalat system operates on the overlapping frequencies between 10.7 – 11.6 GHz. Despite the fact that the satellite dishes and MVDDS receivers are located at the same or adjacent homes, and even on the same roofs, customers have not complained of interference preventing clear reception of the DBS service, and the satellite transmissions use lower power than do those from U.S. DBS satellites. It should also be noted that, given the geography of the UAE, terrain shielding is not an available interference mitigation technique.

The successful deployments of the Etisalat UAE systems, as well as other deployments using the same technology licensed to MDS America, demonstrate that MVDDS/DBS co-existence is feasible without restrictive power limitations that can preclude rural deployment of MVDDS. Reliance on restrictive EPFD limits as a prophylactic against harmful interference is unnecessary and misplaced.

Therefore, as demonstrated by commercial implementation of MDS America's technology, to maximize efficient spectrum use and minimize harmful interference to DBS reception, the Commission should reinstate its initial approach of allowing higher power in rural areas and need not rely on overly restrictive EPFD limits to prevent harmful interference to DBS reception.

Very truly yours,



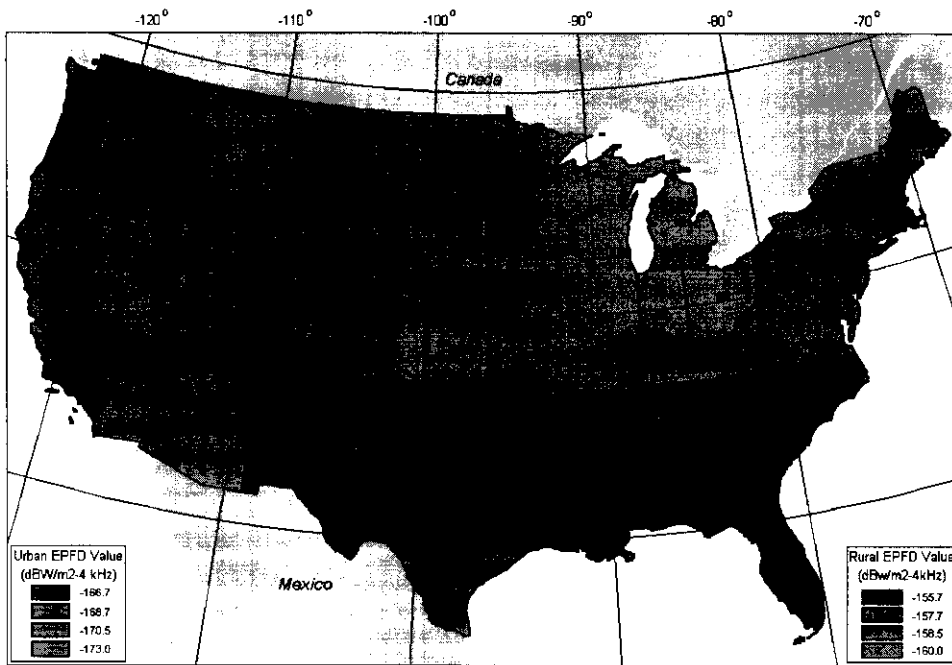
Nancy Killien Spooner  
Helen E. Disenhaus

Counsel for MDS America, Incorporated

cc: Kirk Kirkpatrick

## ATTACHMENT A

### EPFD Limits (Rural, Urban) for DBS 45 cm Antenna



## CERTIFICATE OF SERVICE

I hereby certify that on this \_\_\_\_\_ day of April, 2003, a true and correct copy of the foregoing was served via e-mail (denoted by \*) and hand delivery, on the following individuals:

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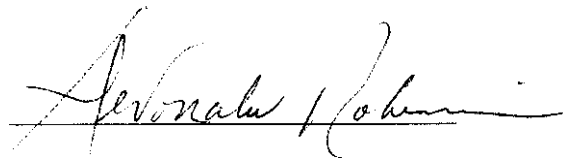
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A handwritten signature in black ink, appearing to read "Steven Reed", is written over a horizontal line.